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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/144,838	08/31/98	SIANI	M GRFN-020/01U

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EXAMINER

WESSENDORF, T

ART UNIT

PAPER NUMBER

1627

DATE MAILED:

02/14/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/144,838

Applicant(s)

Siani et al

Examiner

T. Wessendorf

Group Art Unit

1627



☒ Responsive to communication(s) filed on 11/30/00

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-51 is/are pending in the application.

Of the above, claim(s) 1-27 and 37-51 is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 28-36 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 20

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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The specification is objected for reasons set forth in the last Office action.

The U.S. application Serial No. 09/141,964 appears incorrect since there is no application with said Serial No.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 28-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed cross-over protein "that contains at least one peptide segment whose sequences derived from one parent protein and at least one peptide segment whose sequence is derived from a second parent protein" is not supported in the as-filed specification. The original disclosure, page 29, lines 15-18 do not recite for more than one peptide segment from each of the proteins.

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The specification fails to provide a description of the method wherein the cross-over protein contains more than one segment from each of the first and second parent proteins. The specification does not describe the maximum segments that can be obtained from each of the parent proteins or how each of the segments are derived from each of the parent proteins. Furthermore, the specification does not disclose the different segments or locations of the each of the parent proteins that can be made into a cross-over protein.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 28-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for reasons advanced in the last Office action, page 3, paragraphs 1 and 2.

Applicants argue that with the amendment to the claims, the rejection of the claims has been overcome. However, the present

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claims did not obviate the rejection since the indefinite terms are still present.

Following are 112, second paragraph rejections applied to the newly amended claims:

A) The preamble "that contains at least one peptide segment...." in claim 28 provides for confusion as being more appropriate for a library, especially since the same preamble is used for the library of claim 32. "Said" first parent protein lacks antecedent support from the preamble which does not recite a first parent protein. Furthermore, the newly added language such as "to one another", "compatible reactive groups" and "having a C-terminus and an N-terminus" are merely redundant since the claims inherently contained these limitation. Also, the language "having a C-terminus and an N-terminus" is unclear as to whether the cross-over protein now contains at the left side of the peptide sequence as the C-terminus and the right-side as the N-terminus. This is inconsistent with the preceding recitation that the first segment is the N-terminus and the second as the C-terminus.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by anyone of Canne (J. Am. Soc.) (I) or Dawson et al (science) or Clark Lewis (Journal of Biological Chemistry) or Gaerner et al (Bioconjugate Chem.) for reasons advanced in the last Office action.

It is argued that Cannes discloses a C-terminal to C-terminal ligation that results in a ligation product with two N-termini and no C-terminus. Attention is directed to page 3002, col. 2 which recites that "...the peptide segments 1 and 3 contained a carboxy-terminal-Leu-COSH...the resulting ligations between these peptides and the amino-terminal bromoacetyl groups of the segments 2 and 4 gave a -Leu[COS]Gly-sequence at the site of ligation....condensation of 32-residue COSH segment and a 53-residue bromoacetylated gave a 86-residue product...". Thus, the chemical ligation of the specific compounds disclosed by Cannes does not contain a C-C terminal ligation, as argued.

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It is argued that Dawson ligates two peptide fragments from the same protein. Attention is drawn to e.g., page 777, Fig. 2 which recites chemical ligation of two different segments. Also, see page 778, col. 2, No. 4 under "References and Notes".

Likewise, Gaertner discloses e.g., page 333, abstract that "...a new approach for linking, through a thioether bond, the C-terminus of one unprotected polypeptide with the N-terminus of another". Therefore, two different segments from two different polypeptides are used.

Clark Lewis(Jrnl. of Biol. Chem.) is argued not to teach ligation of at least two peptide fragments. Attention is directed to page 16076, col. 1 which recites that "hybrids between IL-8 and the inactive IP10 protein were designed to identify structural regions and residues required for IL-8 activity.."

IL-8 is nto the same as IP10.

Claims 32-34 and 36 rejected under 35 U.S.C. 102(b) as being anticipated by Cwirla et al (PNAS) for reasons set forth in the last Office action.

Applicants recognized that Cwirla discloses rDNA technology to produce a diverse oligonucleotide library that can be inserted into the gene III of the filamentous phage to create infective fusion phage that display foreign peptides on their surface.

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Nevertheless, argue that such method of producing peptide and protein molecules does not involve the act of ligating a plurality of unique N-terminal peptide segments with a plurality of unique C-terminal peptide fragments. Applicants arguments are unclear as to the meaning of unique N or C protein segments. The argued unique N or C-terminal segments are nothing more than amino acid residues present in either the N or C terminus of each proteins. Since the fusion of Cwirla expresses a plurality of fused protein ligated or linked to the different protein of the filamentous phage hence, the chemically ligated components of the Cwirla anticipates the broad claimed invention.

Claims 28-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Sticht et al (Eur. J. Biochem.) for reasons of record.

Applicants admit that Sticht is directed to the use of rDNA technology to form a chimeric gene whose encoded protein contains an N-terminal position of IL8 and a C-terminal portion of MGSA protein. But argue that Sticht does not disclose the production of a cross-over protein library through the act of ligating under chemoselective reaction conditions a plurality of unique N-terminal peptide segments and plurality of unique C-terminal peptide segments. Applicants' arguments are not commensurate in

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scope with at least claim 28 which does not recite for a plurality of unique N or C terminus. It is considered that the rDNA technology produces numerous or variety of clones (e.g., library) of the fused compounds i.e., IL-8 and MGSA wherein the N-terminus is unique to IL-8 and C terminus to MGSA that results in a cross-over protein.

Claims 28-31 are rejected under 35 U.S.C. 102(a) as being anticipated by Wilken(Gryphon Sciences).

In view of applicants' arguments that they are entitled to the earlier filing date, the rejection of the claims is withdrawn.

Claims 28-31 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 08/945,997 or over claims of copending application S.N. 09/097,094 for reasons advanced in the last Office action.

Applicants argue that the '997 application and instant application have different attributes as summed up at page 16 of the instant REMARKS. Claim 1 of the '977 application is argued to contain sequence of each oligopeptide that need not be derived from two different proteins. However, there is nothing in the

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'977 claim that precludes obtaining each of the two oligopeptides from two different proteins. Rather, broadly that the two oligopeptides are ligated by the recited process which is similar to the instant process except, the '997 application recites the process in more specific steps as opposed to the instant process steps. Accordingly, the specific process steps of the '997 application or specific components is an obvious variant or included in the broad scope of the instant invention.

The same arguments under the '997 application is applied to the '094 application since applicants merely present the same arguments. Furthermore, as recognized by applicants at page 18 of the instant REMARKS, the "method to the present application could be conducted using...thioester forming ligation..." which is the same as the oligopeptide of the '094 application with the limitation of 3 as provided in the Table of attribute. Thus, the instant claimed invention with its broad steps encompassed the specific steps of the '094 application which recites specific limitations of the components in the specific process steps.

Claims 28-31 provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 08/945,997 or 09/0999,094 which has a common inventor with the instant application for reasons set forth in the last Office action.

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The arguments above are incorporated herein since applicants similarly did the same. It is further argued that native chemical ligation is not required by the present invention nor the binding of the N-terminus of one peptide to a solid support. There is nothing in the broad claimed steps that exclude native chemical ligation or that the ligating steps is not by solid phase synthesis of fusion protein. It is also argued that the instant invention be derived from different protein molecules. There is nothing in the '097 that precludes the two oligopeptides ligated together be from two different protein molecules. Applicants argue that there is no prior art cited to teach the modification of the invention of the '997 or '094 application to attain the present invention. Each of the cited copending applications are the prior art itself to the present invention since the instant method steps of ligation includes the specific method steps of each of the copending applications.

No claim is allowed.

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This application contains claims 1-27 and 37-51 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


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Certain papers related to this application may be submitted to Art Unit 1627 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 O.G. 61 (November 16, 1993) and 1157 O.G. 94 (December 28, 1993) (see 37 C.F.R. 1.6(d)). The official fax telephone numbers of the Group are (703)308-7924. NOTE: If applicant does submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Wessendorf whose telephone number is (703) 308-3967. The examiner can normally be reached on Mon. to Fri. from 8 to 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jyothsna Venkat Ph.D., can be reached on (703) 308-0570. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

  
T. Wessendorf  
Patent Examiner  
Art Unit 1627  
2/9/01